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EP 0829996 A2 WO 99/59316 A1  
WO 00/44160 A1 US 5991373 A  
US 5914951 A

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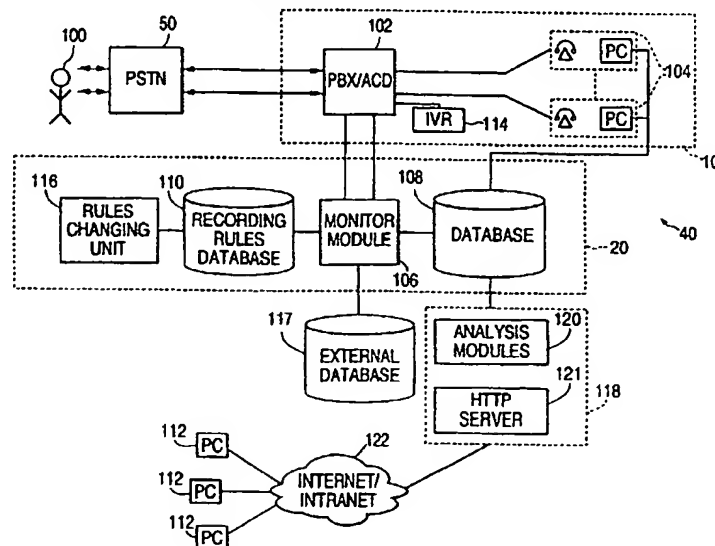
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(54) Abstract Title

**Information retrieval from a contact centre over a wide area network**

(57) An open storage portal is used for selective recording and retrieval of communication contact center (40) transactional data. All data associated with a transaction with the communication contact center (40) is available for rules-based recording. Non-transactional data, including environmental data associated with the contact center, is time-stamped and recorded for subsequent synchronization with the transactional data. User access to the open storage portal for subsequent selective retrieval analysis, and viewing of the multimedia transactional data is provided across the Internet (122). The user can view the transactional data for a selected call in its entirety, thereby recreating a coordinated playback of the original call.

**FIG. 3**

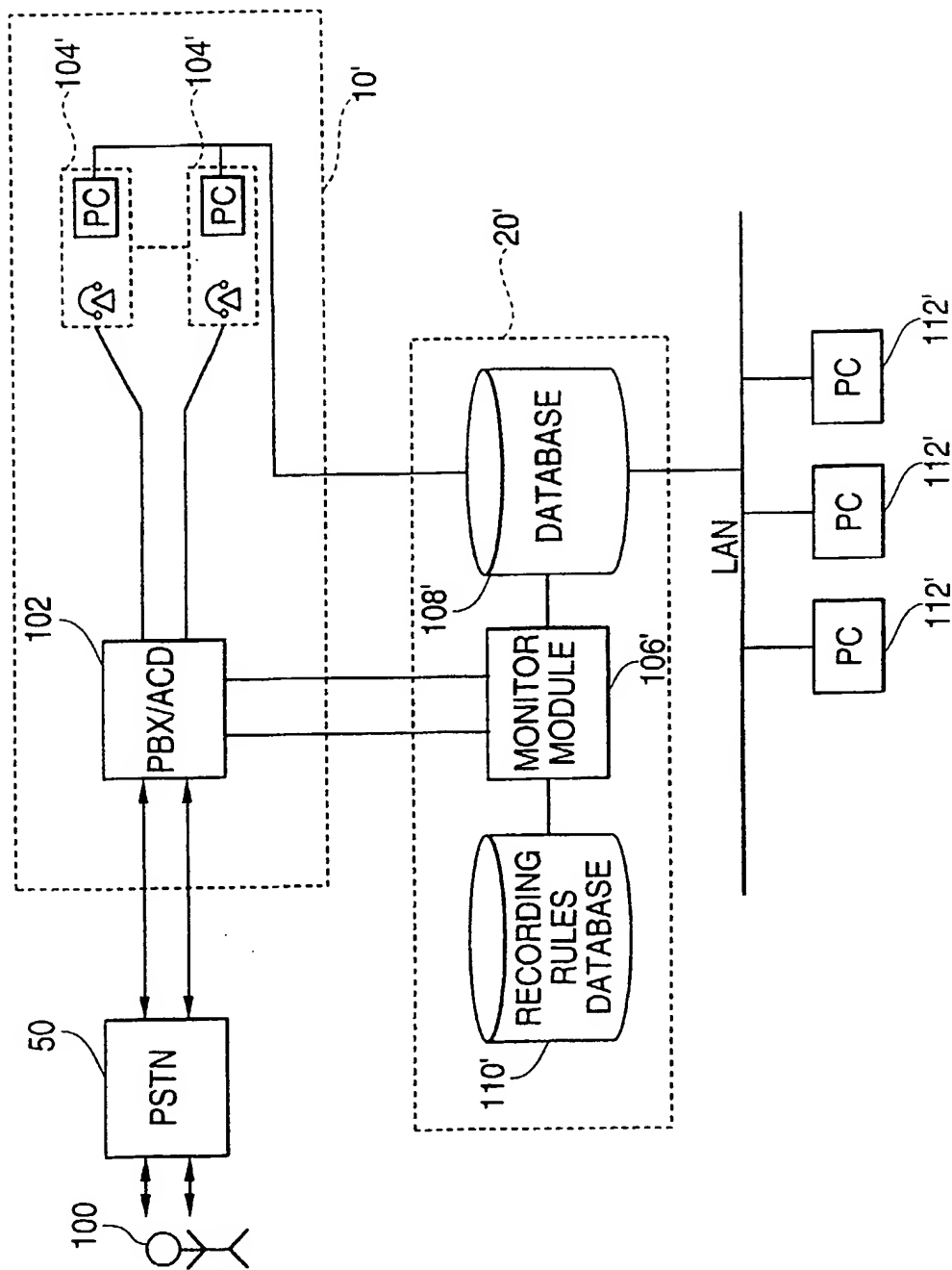


At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

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**FIG. 1**  
(PRIOR ART)



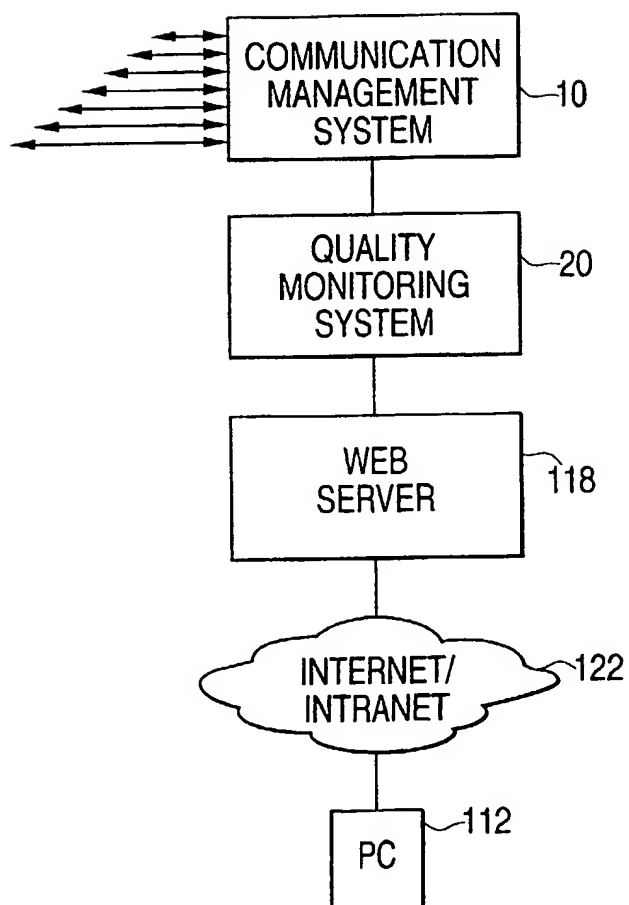
**FIG. 2**

FIG. 3

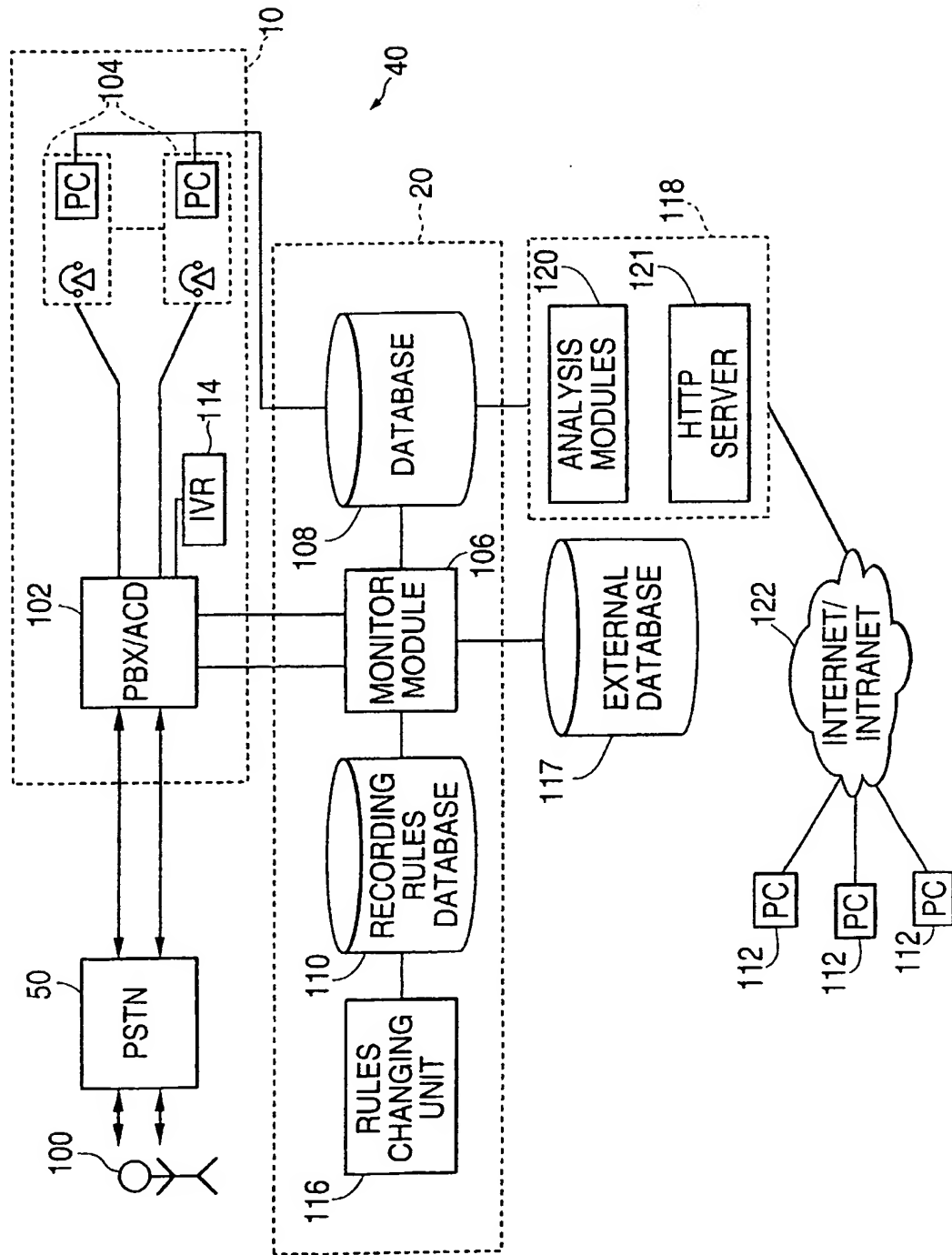


FIG. 3

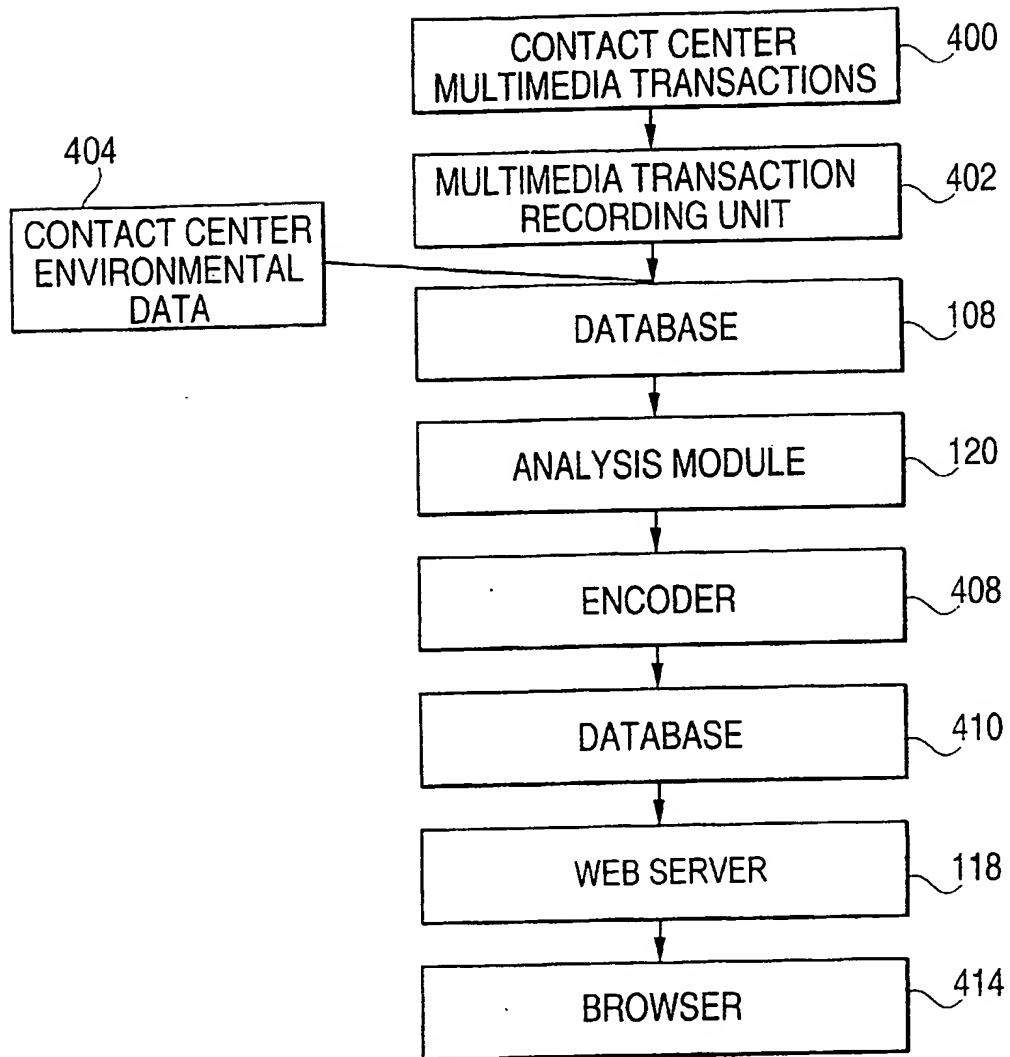
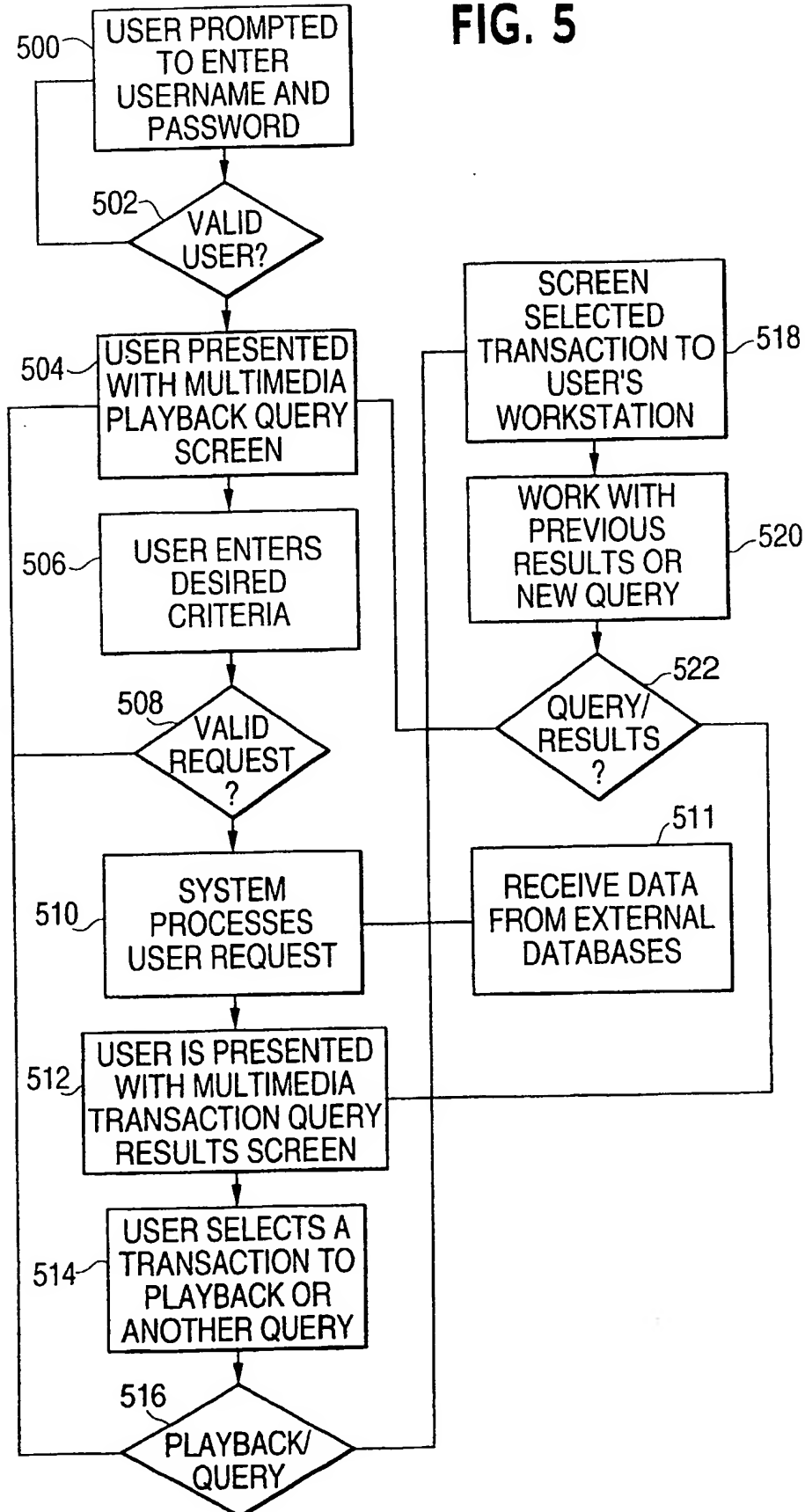
**FIG. 4**

FIG. 5



The present invention relates to concurrently filed application entitled Method and System for Analyzing Customer Communications With a Contact Center, attorney docket number 782.1067, by Robert Eilbacher, et al., the contents of which are incorporated herein by reference. The present invention also relates to concurrently filed application entitled Apparatus and Method for Monitoring and Adapting to Environmental Factors Within a Contact Center, attorney docket number 782.1068, by Robert Eilbacher, et al., the contents of which are incorporated herein by reference

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The present invention relates generally to communication contact centers and more particularly to telephone contact centers for providing telephone response services to individual and business subscribers worldwide. More specifically, the invention relates to a computer-  
15 implemented system for providing multimedia, Internet access to transactional and environmental information generated and gathered at a contact center.

Telephone call centers are facilities for receiving incoming telephone calls and for  
20 responding to the calls by taking messages, interactively directing the caller to a preferred service or information provider, or providing advertising or informational messages on behalf of a sponsoring client. For example, a caller dialing in to the customer service department of a particular home appliance manufacturer may initially be presented with a recorded voice menu from which the caller may respond by entering the appropriate number on a telephone key pad  
25 for the desired department, service, or information. Such menus are included in automated attendant systems to provide multiple options to the caller to accommodate the anticipated needs or inquiries of each caller. The caller could also be queried to provided information, such as the

caller's account number or the last name of a sought person. Such systems are known as Interactive Voice Response (hereinafter referred to as "IVR") systems. Both systems generally also offer the caller the option of speaking with a real person, in which case the call is often placed in a queue and answered by the first available agent. Systems for controlling the queuing and routing of such live calls to agents are known as Automatic Call Distribution (hereinafter referred to as "ACD") systems. Telephone call centers may be as simple as an alternative answering service for an individual during the hours the person is out of the office, in which case the individual can periodically contact the call center for messages. At the other end of the spectrum are call centers through which the caller can inquire about product information and ultimately order a product, charging the purchase to a credit account, all without ever having to enter a store. Call centers can also provide out-bound services in which the call center agents initiate calls to prospective customers and respond to earlier calls and inquiries. Such telephone call centers are generally described in U.S. Patent No. 5,825,869 to Brooks et al., which is incorporated herein by reference.

As used herein, the term, "customer," refers to both the individual calling into the call center for information or to access the available services and the individual who is called by the call center. An "agent" is the call center individual responsible for answering the customer's inquiries and directing the customer to the appropriate individual, department, information source, or service as required to satisfy the customer's needs, regardless of whether the customer or the agent initiated the call. A "monitor" or "supervisor" is the individual responsible for listening to the conversation between the customer and the agent, either in real time or after the end of the call while using a recording of the call, to review the agent's performance and to improve the quality of the customer's experience. The monitor may be a call center employee or may be a third party individual responsible for monitoring agent and call center compliance with certain procedures and standards. A "client" is the individual or entity that contracts the call center to receive or initiate telephone calls on behalf of and directed to the individual or entity. For simplicity, call centers are hereinafter described in terms of handling in-bound calls, even



though they can also handle out-bound calls.

While large manufacturers, service providers, and information providers have staffed in-house call centers to respond to the inquiries of their customers and potential customers, third party telephone call centers have been established whereby calls to several target companies may actually ring and be answered within a third party call center for providing a response, rather than in the locations or offices of the companies themselves. The company the caller is desiring to contact is identified to the call center agent by the telephone number and/or menu response entered by the caller. As such, the call centers may be located thousands of miles away from the actual sought manufacturer or individual.

10       The monitoring of incoming calls, along with the verbal responses of the call center agents, is a well-known quality monitoring and enhancement practice within telephone call centers. The transactions are reviewed, and the agents being monitored are counseled to improve the quality of the service they provide to the customer. Additionally, some of the conversations are recorded to comply with the requirements certain agencies and businesses face regarding the recording and archiving of transaction information, e.g., stock market trades. The monitoring can occur in real time while the conversation or telephone contact is occurring, or the verbal data and information entered through the telephone key pads can be logged or stored for subsequent review. Such a system is disclosed in U.S. Patent No. 5,914,951 to Bentley et al., which is incorporated herein by reference.

20       Specialized devices have been developed for the full time and selective recording or logging of calls to a call center. Such an apparatus has been manufactured by Comverse Infosys, Inc. of Woodbury, New York, under the product name ULTRA. The ULTRA system provides for full time recording of all calls, on-demand and event-driven recording of calls for transaction verification (such as for sales centers), archival of voice data, and instant playback. The ULTRA equipment is installed within the call center, offers a variety of audio compression and archive storage options, and is accessible for audio data retrieval across a local area network (hereinafter referred to as "LAN"). Comverse Infosys, Inc. also markets its MENTOR software package for

capturing call center data, including audio data and agent screen data, and for monitoring and scoring call center agents.

Referring now to Fig. 1, there is illustrated an exemplary telephone call center system. Incoming telephone calls from customers 100 are received through the PSTN 50 and are  
5 processed by the PBX/ACD 102. The IVR portion (not shown) of the PBX/ACD 102 interacts with the customer to determine the nature of the call and the service or information requested by the customer. Although not shown in Fig. 1, the PBX/ACD 102 may include audio databases for directly responding to the customer's inquiries as entered by the customer speaking into his or her telephone or making entries through the telephone keypad. Should the customer indicate a  
10 desire to speak with an agent, the PBX/ACD 102 selectively routes the call to available agents operating workstations 104'. The conversations between the customers 100 and the agents are selectively recorded by the monitor module 106' and stored in the database 108'. While all conversations may be recorded in their entirety, typically only a small portion of the calls (e.g., 4 - 10%) are recorded to save space on the call center database 108'; and, of those recorded calls,  
15 only a portion of the conversation may subsequently be reviewed. In a rules-based recording system, such as the one shown in Fig. 1, the recording rules reside in a rules database 110' and control the recording of the conversations by the monitor module 106'. Personnel responsible for monitoring the calls may access the information stored on database 108' through their respective supervisor workstations 112' for evaluation of the performance of an agent at one of the  
20 workstations 104'.

The information gleaned from the telephone call is used by the supervisor or monitor to monitor the performance of the call center agents for identification of any possible training needs. However, the information gathered is limited to the audio conversation between the caller and the agent, any data entered by the caller through the telephone key pad, and the screens  
25 viewed by the agent. Furthermore, while the subsequent monitoring can occur over a network, the monitoring agent must be set up with appropriate, often proprietary, equipment, speakers, software, and password access to monitor the activities of the call center agents across the

network. In other words, the monitors and supervisors of the call center are usually restricted to locations where they can gain physical access to the call center's telephone center or local area network. Should the network be unavailable to the monitor or should the monitor encounter any difficulty with his or her network station 112' or software, the monitor is prevented from

5 performing his or her monitoring responsibilities. Additionally, the amount of information available to the monitor is very limited and cannot fully recreate the complete environment experienced by the caller and the agent during the course of the telephone contact. As such, the monitor is restricted in thoroughly evaluating the performance of the agent and in completely understanding the experience of the caller during the telephone contact. Furthermore, telephone

10 call center recording and monitoring are limited to the audio and key pad data exchanged between the customer and agent and the screen images viewed by the agent, notwithstanding the multitude of electronic media that is presently used to effect communication and transactions between customers and businesses. Also, under present call center monitoring systems, the monitoring is provided by call center personnel or third party monitors; and the remote client,

15 who has contracted to have calls routed to the call center, is unable to conveniently access complete caller detail information, including conversations between the client's customers and the call center agents. In short, presently no system provides for client or third party verification of the data in a transaction. Similarly, no method or system is available to prove that a particular transaction was executed as intended.

20 Furthermore, customer communications with businesses have expanded beyond the simple telephone and now involve a full range of electronic media, such as electronic mail, facsimile, and Internet interaction. Telephone call center systems are simply not designed nor equipped to process or manage the diverse electronic media and data with which customers and businesses can remotely interact. Accordingly, telephone call center systems cannot capture all

25 the electronic data associated with a multimedia transaction in which the customer utilizes all the media resources available to fulfill a transaction; and, therefore, telephone call center systems are unable to recreate such multimedia transactions for subsequent playback and monitoring and

verification.

The preferred embodiments of the present invention overcome the problems associated  
5 with existing systems for capturing and subsequently reviewing telephone call center transaction  
data by providing the capability of recording all electronic and environmental data associated  
with every call, or selected calls, directed to a call center. The present invention also provides  
access to this data via a wide area network (hereinafter referred to as "WAN"), including a  
private intranet and the Internet, thereby freeing monitors or supervisors from the necessity of  
10 using proprietary equipment and software and the physical constraints and proximity of the  
telephone call center. Furthermore, the invention can fully recreate to the monitor the call center  
environment as experienced by the customer and the agent during the course of the telephone  
call. Also, the invention is capable of handling the full range of electronic communication  
between customers and a communication contact center, including telephone calls, electronic  
15 mail exchanges, facsimile transmissions, web interactions, key pad and keyboard entries, and  
video capture.

An object of the present invention is to remove the present proprietary hardware and  
software limitations for accessing electronic data associated with the operation of a contact  
center. The data is stored on mass storage devices and is made available for selective streaming  
20 onto the Internet for secured access by monitoring personnel located anywhere in the world.  
Such personnel, whether employed by the contact center or by the client whose calls are being  
received at the contact center, can conveniently and inexpensively access the data twenty-four  
hours a day by means of a standard personal computer with Internet access and a standard  
multimedia playback tool.

25 The present invention is directed to a method for retrieving information from a contact  
center, including accessing a contact center over a wide area network and retrieving selected  
information from the contact center over the network. The wide area network may include a

private intranet or the public Internet.

The present invention is also directed to a method for recording contact center information, including recording communication data between a caller and a contact center agent; encoding the recorded data to be streamed across a network; and retrieving the streamed data for presenting to a user.

The present invention is directed to a web-based interface for accessing contact center information, including a multimedia transaction recording unit recording data associated with a contact center communication; a database storing the recorded multimedia data; an encoder formatting the recorded data across a network; and a web server directing the data to a user.

The present invention is further directed to a computer readable medium encoded with software to retrieve information from a contact center by accessing a contact center site over a network other than a local area network, and retrieving selected information from the contact center over the network.

The present invention is also directed to a method for retrieving and transmitting contact center information across a network, including recording data associated with one or more communications to or from the contact center; retrieving recorded data; encoding the retrieved data for streaming over a network; and streaming the encoded data via a web server over a network for viewing with a browser.

The present invention is further directed to an open storage portal apparatus for recording and retrieving contact center information, including means for recording communication data between a caller and a contact center agent; means for encoding the recorded data to be streamed across a network; and means for retrieving the streamed data for presenting to a user.

The present invention is also directed to a method for recording and retrieving contact center information, including recording data associated with one or more communications to or from the contact center; monitoring the one or more communications, wherein the monitoring is performed at the contact center or remotely across a wide area network; retrieving the recorded communications information; and multimedia presenting of the retrieved communications

information.

The remote monitoring may be done over a private intranet or the Internet. The recording is rules-based recording, and the rules for controlling the recording of data can be modified in real time. The recorded data includes such electronic data as: voice data of an incoming or outgoing communication; voice data of one or more contact center agents responding to the communication; graphical user interface screen data used by the one or more contact center agents while responding to the communication; environmental data related to the contact center at the time of the communication; electronic mail data related to the communication; facsimile transmission data related to the communication; video data of a communication exchange between a customer and the agent; video data of the contact center at the time of the communication; video data of the agent while responding to the communication; and key pad responses by the party initiating the communication.

The present invention is directed to an open storage portal platform providing enhanced recording and retrieval of contact center information, including a recording unit recording data associated with one or more communications to or from the contact center; a monitoring unit monitoring the one or more communications; a retrieval unit selectively retrieving the recorded communication information; and a multimedia playback tool presenting the retrieved information.

20

These and other objects and advantages of the present invention will become more apparent and more readily appreciated from the following description of the preferred embodiments, taken in conjunction with the accompanying drawings, of which:

FIG. 1 is a block diagram of a prior art telephone call center.

25 FIG. 2 is a subsystem block diagram of an embodiment of the open storage portal system of the present invention.

FIG. 3 is a block diagram of an embodiment of the open storage portal system of the

present invention.

FIG. 4 is a block diagram of an embodiment of a web-based interface of the present invention, between the contact center and the browser, utilized to store the contact center data and access the formatted data across the Internet.

5        FIG. 5 is a flow chart of an embodiment of the method of the present invention, in which a supervisor or a monitor is provided with the capability of accessing contact center data across the Internet.

10        Referring initially to Fig. 2, a system layout of the present invention is shown. Communication from and to customers are routed to, and emanate from, the communications management system 10. These communications are not limited to telephone calls and can be one, or any combination, of known mechanisms for conveying information, such as telephone calls, video images, electronic mail messages, facsimile transmissions, web interactions, and data  
15        transmissions. All electronic data associated with the communications is routed to the quality monitoring system 20, where the data is selectively recorded based on an active set of recording rules drawn from a recording rules database (not shown). A user operating a communications device 112 across a wide area network 122 interfaces with a web server 118 to selectively access, analyze, and play back the communications data.

20        Referring to Fig. 3, the open storage portal of the present invention provides for the mass collection and storage of electronic data associated with the processing of incoming and outgoing communications of a contact center 40, such as a telephone call center. Customers 100 access the contact center through a network 50. The automatic call distribution system (PBX/ACD) 102 directs the communication to the computer/telephone workstation 104 of a contact center agent  
25        based on the availability of the agent. In those contact centers handling communications for a number of different clients, communications to a particular client may be routed to a finite group of agents specifically trained to respond to the needs of the customers of that client.

Alternatively, the PBX/ACD 102 may include an interactive voice response (IVR) system 114 that presents an audible menu to the customer, requesting a response by means of the customer's telephone key pad or voice, and directing the call to a particular group of agents or to a particular information retrieval system, based on the responses of the customer. For example, the system  
5 can provide the customer 100 the address to which products should be returned, or the Internet address for obtaining additional product information. The PBX/ACD 102, the IVR 114, and the workstation 104 comprise the communications management system 10 of Fig. 2.

All data associated with the customer's communication and the agent's responsive interaction with the customer is selectively recorded by the monitor module 106. Examples of  
10 the data that can be recorded by the system include the audio and video data from both the customer and the agent; video images of the contact center and the agent during the communication; e-mail and facsimile messages between the customer and the agent; keypad data input by the customer; screens viewed by the agent; web interaction data for any Internet communication during the transaction; start and end time for the customer's communication;  
15 identity of the customer, including the originating telephone number and the call-in telephone number; identity of the various agents servicing the communication; length of time the customer is on hold; and the steps the customer navigated through before ending the communication. The system utilizes automatic number identification (ANI) to extract information regarding the identity of the calling party and dialed number identification service (DNIS) to obtain the phone  
20 number the calling party has dialed. The in-dialed phone number is used to identify to the agent the client, promotion, or information that the customer is seeking. This capture of information can also include recording conversations to capture the verbal part of the transaction and digital recording of the agent's display during and after the conversation with the customer. In those cases where communication between the customer and the agent is effected by electronic mail,  
25 the content of the e-mail is captured and recorded along with the e-mail addresses of the sender and the recipient. The recording of the data is controlled at the monitor module 106 by the rules maintained in the rules database 110.



Contact center administrators have access to the rules changing unit 116 to modify the conditions under which various calls are recorded and the data recorded for each such call. All incoming and outgoing calls can be recorded in their entirety; particular calls can be identified for recording, such as by particular clients or agents; and calls can be recorded by event, such as calls exceeding a particular length. For example, to record all calls in excess of five minutes in length, the monitor module 106 triggers the recording of all calls into the database 108. For all calls that terminate in less than five minutes, the monitor module 106 instructs the database 108 to erase all data associated with these short calls. The recorded data is referred to as "cradle-to-grave" information in that all information related to a particular communication or transaction is recorded, from the time the call enters the contact center to when the caller terminates the call. All of the interactions during the call are recorded, including interaction with the IVR system, time spent on hold, data keyed through the caller's key pad, conversations with the agent, video images of the customer or the agent, and screens displayed by the agent at his/her workstation 104 during the transaction. These types of recordings allow for evaluation of the complete customer experience during the interaction of the transaction. As an example, the length of time a customer was on hold during a purchase transaction can be analyzed as a possible detraction from completing a purchase. Such information may be used by contact center personnel to modify their procedures, staffing, and/or equipment to improve the customer experience using the contact center. The comprehensiveness of the data capture of the present invention also allows for the subsequent verification of transaction content. For example, a dispute over what information was verbally provided by a caller applying for insurance coverage over the telephone can easily be resolved by replaying the application call in its entirety. Whether a customer selected size 13 can also be proven, as can whether the customer/investor authorized the purchase of 100 shares of a particular stock. The monitor module 106, database 108, recording rules database 110, and rules changing unit 116 comprise the quality monitoring system 20 of Fig. 2

The open storage portal system of the present invention provides a broadly available doorway to a full range of electronic data recorded during the operation of a contact center, such

as a telephone call center. As used herein, the term, "contact center," refers to a telephone call center that provides all of the aforementioned services and additionally provides information and analysis of the operation and utilization of the center facilities. The contact center is capable of recording, processing, and analyzing multimedia transactions involving electronic data including voice, video, graphical user interface screens, electronic mail, facsimile, and web interactions. While the traditional telephone call center monitors and may record audio data and customer key pad entries, the present invention has the capability of recording the multitude of electronic data formats that represent the interaction that may occur between a customer and a contact center agent during fulfillment of a customer-agent transaction. For example, customers can access the present invention's contact center via "Voice over IP," whereby the customer is speaking and hearing through the microphone and speakers, respectively, of the customer's personal computer instead of the traditional telephone. Additionally, the customer and the agent can engage in two-way video and audio conferencing with PC cameras. The present invention can capture all of this communication data, including the video of the transaction between the customer and the agent.

A unique aspect of the present invention is the inclusion of non-transactional data in the database 108. This information can include environmental information relating to the contact center, such as the number of calls waiting in queue, the number of active calls, the number of customers on hold, the temperature and humidity at the agents' workstations 104, and the number of idle agents. This data is time-stamped and stored in the database 108 for coordinated subsequent matching with transaction call data being recorded at the same time.

Transactions available to be fulfilled through the contact center include the full range of telephone-initiated activities, from voice and e-mail messaging to information services to online ordering of products. The contact center 40 provides the apparatus and methodology in a single open storage portal platform for capturing, accessing, and analyzing all of the data associated with the customer-initiated and customer-authorized transactions. The advantage of recording this data along with the contact center environmental data is that the monitor, instead of merely

reviewing the conduct of the agent, can now perceive the complete transaction as experienced by the customer 100 and the agent, including wait time, environmental characteristics of the contact center at the time of the call, and calls waiting in the queue at the start of the call.

The capture and ultimate playback/viewing of the multimedia communication transaction data of the contact center is described with reference to Fig. 4. The digital and analog data associated with the contact center transactions 400 to be recorded are captured by a multimedia transaction recording unit 402, which stores by data type on any one or more of well known data storage media, such as disk drives or optical disks, included in the contact center database 108. Pertinent data associated with each transaction 400 is also stored in the system's database 108.

For example, the date and time of the transaction; customer, agent, and contact center identification; and location of the recorded transaction on the mass storage media. Also stored on the database 108 are the environmental data 404 for the contact center, captured during the time duration of each recorded call. The data is time-stamped so that the various data types can be matched in time for subsequent synchronization and review. The data of database 108 is selectively input into an analysis module 120 based on a user's query, as explained in more detail below, with respect to Fig. 5. The selected transaction and environmental data output from the analysis module 120 is then encoded into a universally accepted compression format by an encoder 408, that is capable of being streamed to an Internet browser. The streamable data is then stored on the system's mass storage media, as represented by database 410. The streamable data is streamed on demand over a network, including the Internet, through a web server 118, to a browser 414 with capability of playing back multimedia data. The browser 414 is located on the user's workstation 112 of Fig. 2. In the alternative, if the data stored in the database 108 has already been compressed so as to minimize storage requirements, the data can be transcoded to another compressed format suitable for being streamed to a browser.

Contact center monitors, clients, and third party reviewers (hereinafter collectively referred to as "users") alike can access the communication information via the Internet for recreation of the entire communication/transaction. Contact center clients therefore have the

ability to directly evaluate communications made by their customers and to distribute these communications within their respective organization for further evaluation and review. As discussed above regarding the transcoding of the data, the above process of preparing the transaction data for viewing on the Internet can omit the step of storing the raw transaction data and can proceed directly from capture to compression to storage to save space on the storage media 108. As a result of the present invention, access to contact center transactional data is no longer limited by the number of monitor workstations 112 connected to the system because, with the present invention, any number of Internet-accessible users with proper authorization and a multimedia playback browser can query the data anytime, from anywhere.

10 A key feature of the present invention is the ease of remote access to the data by users. The user is no longer restricted to the proprietary equipment and software of a telephone call center to conveniently and economically access the full wealth of information that is recorded and subsequently made available for review and analysis by the present open storage portal operating with the communication contact center. The user has the option of selecting particular transactions to review, such as all calls for a particular client, for a particular product, to a particular agent, during a particular time frame, etc. In this manner, the users have web-based browser access to the full range of contact center data from anywhere in the world and are not constrained by a requirement for proprietary hardware and software in network proximity to the contact center.

20 Internet access to the contact center information may be secured through the use of usernames, passwords, and encryption of the data on the contact center database 108 (Fig 3.). A user at a computer 112 interfaces with the contact center system 40 by entering the system's URL or IP address into the location section of the user's browser. Referring to Figs. 4 and 5, the system's web server 118 presents a logon screen to the user at 500 for entry of a valid username and password. Upon validation of the username and password at 502, the system presents a selection screen to the user via the user's browser at 504. This screen enables the user to specify which multimedia transactions the user wishes to play back. The system restricts access to the

data residing in database 108, based on the entered username and password. For example, client1 would be limited to viewing only that data associated with calls made by customers calling into client1's telephone number or databases. The user can select transactions for analysis and/or playback by any combination of a number of available fields, including time,

5 date, client, customer, product, length of time on hold, or agent. The user then submits at 506 the screen form to the system's web server. The web server 118 (Fig. 3) serves as an interface between the user's workstation 112 and the contact center system 40 and provides both the HTTP server 122 and the logic components of the analysis module 120. The web server determines at 508 whether the user request is valid. For example, the user may search for all data associated

10 with a particular customer or client or may limit the inquiry to a certain time range and thereby access a history of transactions with a particular customer or client. Furthermore, the user may seek summary, rather than detail, information, in which case the system presents the user with the selected totals of contact center activity instead of the multimedia data associated with particular transactions.

15 If the request is valid, the system processes the user's request at 510, with the logic components of the web server 118 interacting with the contact center's database 108 to enforce user-based restrictions, search for matching elements, and compile results. Depending on the nature of the query, the system can incorporate at 511 the information maintained in a series of external databases 117. For example, the external databases 117 could contain client stock trade

20 information, the query could compare the customer names in the contact center transactions for the past week with the names of the buyers and sellers of client stock across the same time interval, and the results screen at 512 could indicate the contact center transactions and stock trade transactions with a common customer name. The results from the user's query are encoded by the web server 118 for streaming to the user's browser and for presenting to the user at 512.

25 At this point, the user can play back a multimedia transaction by selecting it on his/her browser at 514 and proceeding to 518, where the recorded multimedia transaction is streamed to the user's multimedia playback tool (e.g., audio data of conversation between customer and agent, video

images of the client and the agent, screen images from the agent workstation 104, e-mail and facsimile messages between the customer and agent, and keypad entry data from the customer). While playing back the full range of multimedia data, the user has the option of keyed and voice annotation, whereby the user can enter comments through a keyboard or a microphone for  
5 placement on the transactional data and subsequent storage through the web server 118 onto the database 108. After accessing the transaction, the user can return to 512 to select another found transaction or can return to 504 to enter a new query. In the alternative, the user can elect at 516 to view none of the found transactions and can return to the query screen at 504 for a new search.

10 Through the selective recording and the selective retrieval, analysis, and playback of contact center call data, the user can now fully recreate the experience of both the customer and the agent during the call. With this information, the user can verify past transactions; monitor the performance of the agent for possible review and training; determine the effect that a stressful environment in the contact center may have on the ultimate results of a transaction; and perceive  
15 the results of equipment, staffing, and policy changes in the contact center. All of these effects can be accomplished conveniently and economically anywhere in the world, any time of day because of the wealth of information captured by the system, the analysis produced by the system, and the ease of access to both the raw transactional data of each communication and the analyzed results of contact center activity.

## CLAIMS

1. A method for retrieving information from a contact center, comprising:  
accessing a contact center over a wide area network; and  
retrieving selected information from the contact center over the network.
2. The method for retrieving information from a contact center according to claim 1,  
5 wherein accessing comprises accessing a contact center over a private intranet or the Internet.
3. The method for retrieving information from a contact center according to claim 1,  
wherein accessing comprises using a web server to access the contact center.
4. The method according to any of claims 1 to 3,  
wherein retrieving comprises using a browser.
- 10 5. The method according to any of claims 1 to 4,  
wherein retrieving comprises retrieving multimedia information.
6. The method for retrieving information from a contact center according to claim 5,  
wherein retrieving multimedia information comprises retrieving at least two different formats of  
information synchronized in time to recreate a communication with the contact center.
- 15 7. A method for retrieving information from a contact center, comprising:  
accessing a contact center over a wide area network;  
storing data associated with communications with the contact center; and

retrieving the stored data across the wide area network with a browser.

8. The method for retrieving information according to claim 7, wherein retrieving the stored data comprises secured retrieving by password access.

9. The method according to claim 7 or claim 8, wherein retrieving  
5 the stored data comprises coordinated playback of communications and environmental data associated with the contact center.

10 The method according to any of claims 7 to 9, wherein retrieving the stored data comprises transcoding the stored data for streaming to the browser.

11. A method for processing contact center information, comprising:  
10 recording communication data between a customer and a contact center agent;  
encoding the recorded data to be streamed across a network; and  
retrieving the streamed data for presenting to a user.

12. A web-based interface accessing contact center information, comprising:  
a multimedia transaction recording unit recording data associated with a contact  
15 center communication;  
a database storing the recorded multimedia data;  
an encoder formatting the recorded data across a network; and  
a web server directing the data to a user.

13. A computer readable medium encoded with software to retrieve information from  
20 a contact center by accessing a contact center over a wide area network, and retrieving selected information from the contact center over the network.



14. A method for retrieving and transmitting contact center information across a network, comprising:

recording data associated with one or more communications to or from the contact center;

5 retrieving recorded data;

encoding the retrieved data for streaming over a network; and

streaming the encoded data via a web server over a network for viewing with a browser.

15 15. An open storage portal apparatus for recording and retrieving contact center information, comprising:

means for recording communication data between a caller and a contact center agent;

means for encoding the recorded data to be streamed across a network; and

means for retrieving the streamed data for presenting to a user.

15 16. A method for recording and retrieving contact center information, comprising: recording data associated with one or more communications to or from the contact center;

monitoring the one or more communications, wherein said monitoring is performed at the contact center or remotely across a wide area network;

20 retrieving the recorded communications information; and

presenting the retrieved communications information in a multimedia format.

17. The method of recording and retrieving information according to claim 16, wherein said remote monitoring is provided over a private intranet or the Internet.

18. The method according to claim 16 or claim 17,  
wherein the recording is rules-based recording, and wherein the rules for controlling the  
recording of the data are modified in real time.

19. The method according to any of claims 16 to 18,  
5 wherein the recorded data includes one or more of: voice data of an incoming or outgoing  
communication; voice data of one or more contact center agents responding to the  
communication; graphical user interface screen data used by the one or more contact center  
agents while responding to the communication; environmental data related to the contact center  
at the time of the communication; electronic mail data related to the communication; facsimile  
10 transmission data related to the communication; video data of a communication exchange  
between a customer and the agent; video data of the contact center at the time of the  
communication; video data of the agent while responding to the communication; and key pad  
responses by the party initiating the communication.

20. The method of recording and retrieving information according to claim 19,  
15 wherein the recorded data includes at least two selected from the list consisting of: environmental  
data related to the contact center at the time of the communication; electronic mail data related to  
the communication; facsimile transmission data related to the communication; video data of a  
communication exchange between a customer and the agent; video data of the contact center at  
the time of the communication; and video data of the agent while responding to the  
20 communication.

21. The method according to claim 19 or claim 20,  
wherein retrieving comprises limiting the retrieval by password access.

22. The method according to any of claims 19 to 21,  
wherein retrieving comprises retrieving by keyword searching.

23. The method according to any of claims 19 to 22,  
wherein retrieving comprises matching the recorded data by time and date such that the data is  
5 synchronized, analyzed, and presented to a user in multimedia form.

24. The method of recording and retrieving information according to claim 23,  
wherein the synchronization includes matching the recorded data with data from at least one  
source located external to the contact center for analysis and reporting.

25. The method of recording and retrieving information according to claim 23,  
10 wherein the synchronization includes matching the recorded data with environmental data from  
the contact center for analysis and reporting.

26. An open storage portal platform providing enhanced recording and retrieval of  
contact center information, comprising:  
a recording unit recording data associated with one or more communications to or  
15 from the contact center;  
a monitoring unit monitoring the one or more communications;  
a retrieval unit selectively retrieving the recorded communication information;  
and  
a multimedia playback tool presenting the retrieved information.



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Claims searched: 1 to 10, 12 to 13, 15 to 25 Date of search: 20 November 2001

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:	
UK CI (Ed.S):	H4K (KF50X)
Int CI (Ed.7):	H04M 3/50
Other:	Online: WPI, EPODOC, JAPIO

### Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	EP 0829996 A2	(AT & T) see column 5 line 58 to column 6 line 18 and figures 1A and 1B.	1 at least
PX	WO 00/44160 A1	(WILLOW) see page 8 line 25 to page 9 line 33 and figure 1.	1, 5, 6, 13, 16, 18
X, Y	WO 99/59316 A1	(METRO ONE) see page 2 line 12 to page 4 line 22.	X: 1 to 10, 12, 13, 15 to 19, 21, 23. Y: 20
Y	US 5991373	(PATTISON) see abstract.	19, 20
X	US 5914951	(BENTLEY) see column 2 lines 36 to 62 and column 3 line 50 to column 4 line 12.	1 at least

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X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.